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ISCHAEMIC HEART DISEASE

The radial artery as graft conduit: a good vessel at 1 year, a better one at 5? ► In the past decade, the radial artery has frequently been used for coronary bypass surgery, despite concern regarding the possibility of graft spasm. The investigators enrolled 561 patients at 13 centres. The left internal thoracic artery was used to bypass the anterior circulation. The radial artery graft was randomly assigned to bypass the major vessel in either the inferior (right coronary) territory or the lateral (circumflex) territory, with the saphenous vein graft used for the opposing territory (control). The primary end point was graft occlusion, determined by angiography 8–12 months postoperatively. Angiography was performed at one year in 440 patients: 8.2% of radial artery grafts and 13.6% of saphenous vein grafts were completely occluded ($p = 0.009$). Diffuse narrowing of the graft (the angiographic ''string sign'') was present in 7.0% of radial artery grafts and only 0.9% of saphenous vein grafts ($p = 0.001$). The absence of severe native vessel stenosis increased risk of occlusion of the radial artery graft and diffuse narrowing of the graft. Thus the combined rate of occlusion or string sign was not significantly different for vein versus radial artery. However, the string sign in a radial graft is often not associated with ischaemia, and can improve over time. Long term, the difference in occlusion rates might increase as saphenous vein grafts are known to continue to degenerate. The longer term follow up of these groups of patients will be of great interest.

▲ Desai ND, Cohen EA, Naylor DC, *et al*, for the Radial Artery Patency Study Investigators. A randomized comparison of radial-artery and saphenous-vein coronary bypass grafts. *N Eng J Med* 2004;**351**:2302–9.

HEART FAILURE

Ablate AF in heart failure? ► Congestive heart failure and atrial fibrillation (AF) often coexist, and each adversely affects the other with respect to management and prognosis. Fifty eight consecutive patients with congestive heart failure and a left ventricular ejection fraction $< 45\%$ who were undergoing catheter ablation for AF were matched to 58 patients without congestive heart failure who were undergoing ablation for AF. Patients' left ventricular function and dimensions, symptom score, exercise capacity, and quality of life at baseline and at one, three, six, and 12 months were evaluated. After a mean (SD) of 12 (7) months, 78% of the patients with congestive heart failure and 84% of the controls remained in sinus rhythm ($p = 0.34$) (69% and 71%, respectively, were in sinus rhythm without the administration of antiarrhythmic drugs). This in itself is a remarkably high success rate. The patients with congestive heart failure had significant improvement in left ventricular function (increases in the ejection fraction and fractional shortening of 21 (13)% and 11 (7)%, respectively; $p < 0.001$ for both comparisons), exercise capacity, symptoms, and quality of life. The ejection fraction improved significantly not only in patients without concurrent structural heart disease (24 (10)%; $p < 0.001$) and those with inadequate rate control before ablation (23 (10)%; $p < 0.001$), but also in those with coexisting heart disease (16 (14)%; $p < 0.001$) and adequate rate control before ablation (17 (15)%; $p < 0.001$). No mortality advantage was proven in this small study, and the results appear at odds with the AFFIRM study, which suggested no benefit of rhythm control over rate control. This might be because a large proportion of patients in the present study got off antiarrhythmic medication, which might have been having decremental effects. More data are needed before the electrophysiologists are swamped by requests for AF ablation.

▲ Hsu L-F, Jaïs P, Sanders P, *et al*. Catheter ablation for atrial fibrillation in congestive heart failure. *N Engl J Med* 2004;**351**:2373–83.

HYPERTENSION

Reduction in LVH now equals less risk of death ► Could the paradigm of ''lower is better'' now be spreading to yet another area of cardiology, namely the association between left ventricular hypertrophy (LVH) and increased cardiovascular risk? Although observational data have suggested that a decrease in left ventricular mass with treatment for hypertension is associated with better outcomes, prospective and systematic clinical trial data have been slim. Okin and colleagues looked at more than 9000 patients who were enrolled in the LIFE (losartan intervention for endpoint reduction in hypertension) trial, which compared a regimen using losartan with one using atenolol. Patients were followed up at four years for end points of cardiovascular death, myocardial infarction, or stroke. Interestingly, although both medications achieved a similar degree of blood pressure lowering, losartan was associated with a greater reduction in left ventricular mass as assessed by ECG. Moreover, this reduction in mass was directly proportional to a reduction in all cardiovascular events. For the composite event the adjusted hazard ratio (HR) was 0.86 for every 1 SD decrease in Cornell voltage criteria. In an accompanying article in the same issue by Devereux, a prospective substudy cohort of 941 LIFE study patients was assembled and those with ECG changes of LVH also had echocardiography performed at baseline and yearly thereafter. Follow up was for a mean of 4.8 years for the same end points listed above. Again, a lower left ventricular mass index was associated with lower rates of each of the individual measured end points as well as the composite cardiovascular end point (HR 0.78 per 1 SD decrease in left ventricular mass index).

▲ Okin PM, Devereux RB, Jern S, *et al*. Regression of electrocardiographic left ventricular hypertrophy during antihypertensive treatment and the prediction of major cardiovascular events. *JAMA* 2004;**292**:2343–9.

▲ Devereux RB, Wachtell K, Gerdts E, *et al*. Prognostic significance of left ventricular mass change during treatment of hypertension. *JAMA* 2004;**292**:2350–6.

Treat ''normal'' blood pressure to retard coronary disease ► The CAMELOT (comparison of amlodipine versus enalapril to limit occurrences of thrombosis) study enrolled 1991 patients with ''normal'' blood pressure (diastolic < 100 mm Hg) and proven coronary artery stenoses of $> 20\%$. They were randomised to treatment with amlodipine 10 mg, enalapril 20 mg, or placebo over a five year period. Compared to placebo, both amlodipine and enalapril reduced blood pressure similarly. However, those on amlodipine showed fewer ischaemic events (unsurprisingly), and a trend towards reduced death, myocardial infarction, and stroke. A systolic blood pressure reduction of 10 mm Hg appeared to be associated with no progression in lesions on intravascular ultrasound, while a reduction greater than this suggested regression. Perhaps it truly is about blood pressure reduction, and the renin–angiotensin system blockers are not essential drugs for all patients with vascular disease that the HOPE, LIFE, and PROGRESS studies suggested. The recent PEACE study (see below) also suggests that angiotensin converting enzyme (ACE) inhibitors are not essential in all such patients.

▲ Nissen SE, Tuzcu EM, Libby P, *et al*. Effect of antihypertensive agents on cardiovascular events in patients with coronary disease and normal blood pressure. *JAMA* 2004;**292**:2217–26.

ACE inhibition: rest in PEACE? ► In the PEACE (prevention of events with angiotensin converting enzyme inhibition) trial, patients with stable coronary artery disease and normal or slightly reduced left ventricular function were given ACE inhibitors in addition to modern conventional treatment. The trial was a double blind, placebo controlled study in which 8290 patients were randomly

assigned to receive either trandolapril at a target dose of 4 mg per day (4158 patients) or matching placebo (4132 patients). The mean (SD) age of the patients was 64 (8) years, the mean blood pressure 133 (17)/78 (10) mm Hg, and the mean left ventricular ejection fraction 58 (9)%. The incidence of the primary end point—death from cardiovascular causes, myocardial infarction, or coronary revascularisation—was 21.9% in the trandolapril group, as compared with 22.5% in the placebo group (HR in the trandolapril group 0.96, 95% confidence interval (CI) 0.88 to 1.06; p = 0.43) over a median follow up period of 4.8 years. In the HOPE (heart outcomes prevention evaluation) trial, high risk patients with vascular disease (including coronary artery disease) or diabetes who did not have heart failure were randomly assigned to receive either ramipril or placebo. The trial showed a significant reduction (22%) in the primary end point—death from cardiovascular causes, non-fatal myocardial infarction, or stroke—with ramipril. EUROPA showed that the clinical benefits of ACE inhibitors could be extended to a population of patients with coronary artery disease who had a better prognosis than those in HOPE. PEACE may have stretched the idea too far, and really stable patients with coronary disease who are already on good risk reduction medication might avoid the need for ACE inhibition.

▲ PEACE Trial Investigators. Angiotensin-converting-enzyme inhibition in stable coronary artery disease. *N Engl J Med* 2004;**351**:2058–68.

▲ Heart Outcomes Prevention Evaluation Study Investigators. Effects of an angiotensin-converting-enzyme inhibitor, ramipril, on cardiovascular events in high-risk patients. *N Engl J Med* 2000;**342**:145–53. [Erratum *N Engl J Med* 2000;**342**:748, 1376.]

▲ Fox KM. Efficacy of perindopril in reduction of cardiovascular events among patients with stable coronary artery disease: randomised, double-blind, placebo-controlled, multicentre trial (the EUROPA study). *Lancet* 2003;**362**:782–8.

GENERAL CARDIOLOGY

Being fat increases the risk of AF ► Obesity is a well known risk factor for IHD, but does it cause arrhythmias also? Such a potentially modifiable risk factor could be targeted to help reduce the significant morbidity and mortality associated with AF, for example. Wang and colleagues studied 5282 participants in the Framingham study without AF and followed them up for a mean period of 13.7 years, during which time 526 participants developed AF. After adjustment for cardiovascular risk factors, interim myocardial infarction or heart failure, a 4% increase in AF risk per 1 unit body mass index (BMI) increase was observed in men (95% CI 1% to 7%; p = 0.02) and in women (95% CI 1% to 7%; p = 0.009). However, after adjustment for echocardiographic left atrial diameter in addition to clinical risk factors, BMI was no longer associated with AF risk, thus suggesting that excess risk of AF associated with obesity is mediated by left atrial dilatation.

▲ Wang TJ, Parise H, Levy D, *et al*. Obesity and the risk of new-onset atrial fibrillation. *JAMA* 2004;**292**:2471–7.

The diabetic patient and β blockers ► The GEMINI (glycaemic effects in diabetes mellitus: carvedilol-metoprolol comparison in hypertensives) aimed to examine the effect of various β blockers on the glycaemic control of patients with hypertension (blood pressure > 130/80 mm Hg) and type 2 diabetes mellitus (HbA_{1c} 6.5–8.5%) receiving renin–angiotensin blockers. A total of 1235 participants were randomised to receive 6.25–25 mg of carvedilol or 50–200 mg of metoprolol tartrate over a five month treatment period. Although blood pressure reduction was similar in both groups, the mean (SD) HbA_{1c} concentration was found to increase in those on metoprolol (0.15 (0.04)%; $p < 0.001$), but not in those taking carvedilol (0.02 (0.04)%; $p < 0.001$). Similarly, insulin sensitivity improved with carvedilol but not metoprolol, and progression to microalbuminuria was less frequent too. A longer term treatment trial looking at definitive outcomes, such as cardiovascular events and mortality, is needed to assess whether the differences noted translate into improved outcomes.

▲ Bakris GL, Fonseca V, Katholi RE, *et al*. Metabolic effects of carvedilol vs metoprolol in patients with type 2 diabetes mellitus and hypertension. *JAMA* 2004;**292**:2227–36.

Sudden death in US troops ► Sudden death among military recruits is rare. Because extensive medical data are available, identification of the underlying causes of sudden death may promote health care policy to reduce the incidence of sudden death. All non-traumatic sudden deaths from a monitored 6.3 million men and women age 18–35 years were assessed. Of 126 non-traumatic sudden deaths (rate 13.0/100 000 recruit-years), 108 (86%) were related to exercise. The most common cause of sudden death was an identifiable cardiac abnormality (64 of 126 recruits (51%)); however, a substantial number of deaths remained unexplained (44 of 126 recruits (35%)). The predominant structural cardiac abnormalities were coronary artery abnormalities (39 of 64 recruits (61%)), myocarditis (13 of 64 recruits (20%)), and hypertrophic cardiomyopathy (8 of 64 recruits (13%)). An anomalous coronary artery accounted for one third (21 of 64 recruits) of the cases in this cohort, and, in each, the left coronary artery arose from the right (anterior) sinus of Valsalva, coursing between the pulmonary artery and aorta. This cohort underwent a pre-enlistment screening programme that included history and physical examination; this may have altered outcomes, reducing the incidence of death.

▲ Eckart RE, Scoville SL, Campbell CL, *et al*. Sudden death in young adults: a 25-year review of autopsies in military recruits. *Ann Int Med* 2004;**141**:829–34.

Journals scanned

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